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INDUSTRIAL DIVING SERVICES INC.

540 SYCAMORE STREET
SEWICKLEY, PA. 15143
Phone 412-741-6111

REPORT TO:

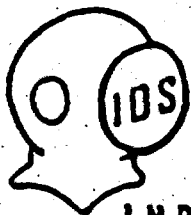
Sewickley Borough

Sewickley Water Works

Chester Engineers

Attention: E. Tucci

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INDUSTRIAL DIVING SERVICES INC.

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October 14, 1975

The water source for the Sewickley Water Works is an intake cribbing located in the Ohio River. The purpose of this cribbing is to extract water from the water-bearing gravel below the existing river bottom. The quality of crib water is consistently superior to that of the free flowing river water above it. This cribbing is beneath riverbed level at approximately 670' elevation. It is located down-river from the Coast Guard Decot, adjacent to the existing Water Works Building. A submerged lock and dam guide wall is located in the same area.

Existing data indicates the structure was built around 1900. At the time of construction, the surface elevation of the river was lower, permitting conventional building technique behind a dirt cofferdam. Today the pool elevation has been raised, causing the cribbing to be 25' below the surface of the river.

The structure is "L" shaped, the long leg being in a general east-west direction for a distance of 300'. The short leg runs northward for a distance of 40'. Construction is said to be from 2" x 12" hemlock. An 18" cast iron pipe

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(Pac)

enters the cribbing at the northmost end.

Early in 1975, amounts of mud and other foreign materials began to enter the pumping station. This condition was noted particularly at times of high water.

As a mutual undertaking, I.D.S. Inc., Chester engineers and Water Works personell entered into an agreement for the purpose of :

- A. Determination of probable causes of water quality deterioration.
- B. Assessment of the condition of existing intake cribbing and pipe.

River bottom conditions indicated that water and other materials were being drawn downward and entering the intake system. A derrickboat was hired to remove the overburden from on top of the cribbing.

Emplacement of the derrickboat spuds (anchoring devices) was done with the assistance of the Chester engineers, to prevent possible damage to the cribbing.

The overburden debris, sand, gravel and clay was removed in two primary ways: clamshell excavation and diver operated submersable dredge (jet). In this manner, a portion of the cribbing roof was exposed, as well as the cast iron pipe which enters the crib. Consistent jetting for several days, to remove the final portions of overburden allowed the determination:

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The 18" pipe was broken at a flange outside the cribbing.

The cribbing roof was irregular in nature, having both broken and split boards.

Additional jetting then revealed that several boards were actually dislodged, with no continuity to the direction or elevation. One 12' length was removed to gain access into the crib. Removal of sand and gravel from inside the northern edge of the crib was begun.

As work progresses, gravel was removed from around the end of the pipe, which is located 3 or 4 feet inside the crib. Additional gravel was removed from inside the uncovered portion, entering a distance of about 6' into the cribbing.

Construction seems to be like that of a conventional floor joist, flooring configuration. 32" centers on 2 x 12" joist, with 2 x 12's spiked down on top. These joist are cracked and broken, allowing collapse of this section of the crib roof. The sand and gravel within the crib probably supports the structure, preventing complete collapse. For this reason only limited amounts of materials were removed.

A meeting was held with the principles; Water Authority, Plant Superintendent, engineers and diver. Subsequent to the diver's report it was agreed that the most prudent course of action was to attempt to re-establish the integrity of the system as quickly and economically as possible. The following actions were taken:

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1. Additional removal of sand and gravel around the end of the pipe inside the cribbing.
2. Repair to pipe using a stainless band clamp where pipe may have been cracked in our attempt to cut a section out.
3. Repair at flange using lead wedges, oakum, roof mastic and rubber gasketing.
4. Additional support for pipe using bagged concrete, shaped beneath and around the repaired area.
5. Emplacement of a steel and angle iron patch on top of the crib where boards were missing.
6. Sealing off of river water with 2 ^{ft} inches of Red clay on top of Plate.
7. Covering of the clay with sand and gravel.

Respectfully submitted,

*Howard K. Blair
for P. J. Sine*

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